

## PATENT COOPERATION TREATY

## PCT

10/532790

## INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference <b>A02P2024P</b>	<b>FOR FURTHER ACTION</b>	see Form PCT/ISA/220 as well as, where applicable, item 5 below.
International application No. <b>PCT/SE 2003/001676</b>	International filing date (day/month/year) <b>28 October 2003</b>	(Earliest) Priority Date (day/month/year) <b>31 October 2002</b>
Applicant <b>St. Jude Medical AB</b>		

This international search report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This international search report consists of a total of 5 sheets.

☒ It is also accompanied by a copy of each prior art document cited in this report.

1. Basis of the report

a. With regard to the language, the international search was carried out on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.

☐ The international search was carried out on the basis of a translation of the international application furnished to this Authority (Rule 23.1(b)).

b. ☐ With regard to any nucleotide and/or amino acid sequence disclosed in the international application, see Box No. I.

2. ☐ Certain claims were found unsearchable (see Box No. II)

3. ☒ Unity of invention is lacking (see Box No. III)

4. With regard to the title,

☒ the text is approved as submitted by the applicant.

☐ the text has been established by this Authority to read as follows:

5. With regard to the abstract,

☒ the text is approved as submitted by the applicant.

☐ the text has been established, according to Rule 38.2(b), by this Authority as it appears in Box No. IV. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.

6. With regard to the drawings,

a. the figure of the drawings to be published with the abstract is Figure No. 1

☒ as suggested by the applicant.

☐ as selected by this Authority, because the applicant failed to suggest a figure.

☐ as selected by this Authority, because this figure better characterizes the invention.

b. ☐ none of the figures is to be published with the abstract.

# INTERNATIONAL SEARCH REPORT

International application No.  
**PCT/SE 2003/01676**

## Box No. II Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)

This international search report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claims Nos.:  
because they relate to subject matter not required to be searched by this Authority, namely:
  
2. ☐ Claims Nos.:  
because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:
  
3. ☐ Claims Nos.:  
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

## Box No. III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

**See extra sheet**

1. ☐ As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims.
2. ☐ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claims Nos.:
  
4. ☒ No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.: **1-14, 16**

### Remark on Protest

- ☐ The additional search fees were accompanied by the applicant's protest.  
☐ No protest accompanied the payment of additional search fees.

INTERNATIONAL SEARCH REPORT

International application No.  
PCT/SE 2003/01676

The requisite unity of invention (Rule 13.1 PCT) does not exist inasmuch as a technical relationship involving one or more of the same or corresponding special technical features in the sense of Rule 13.2 PCT does not exist between the subject-matter of the following groups of dependent claims:

1. Claims: 1-14,16

A motion sensor for measuring a patient's activity level, comprising a fluid comprising at least one anisotropic fluid.

2. Claim 15

An Electrically detectable anisotropic fluid comprising a liquid crystalline polymer as the anisotropic fluid, which LCP is covalently bound to an iron-oxide nanoparticle.

Prior art has been defined as:

Document D1: US5755741 A

First invention:

From a comparison of claims 1 and 15 and the prior art the following technical features can be seen to make a contribution over the prior art (Special technical features, Rules 30(2) EPC):

Claim 1 and 16:

A motion sensor characterised by that the fluid comprises at least one anisotropic molecule, the anisotropic properties of which are changed in relation to the motion of a fluid, whereby the state of the anisotropic is detectable by electrodes.

From these technical features, the objective problem to be solved is how to construct a non-mechanical motion sensor, which is possible to minimise.

Second invention:

From a comparison of claims 1 and 16 and the prior art the following technical features can be seen to make a contribution over the prior art (Special technical features, Rules 30(2) EPC):

Claim 15:

An electrically detectable anisotropic fluid comprising a liquid crystalline polymer as the anisotropic fluid, which LCP is covalently bound to an iron-oxide nanoparticle.

.../...

INTERNATIONAL SEARCH REPORT

International application No.

**PCT/SE 2003/01676**

From these technical features, the objective problem to be solved is how to produce an electrically detectable anisotropic fluid.

A comparison of the objective problem 1 with the objective problem 2, seen in the light of the description and the drawings of the present application, indicates that there is no technical correspondence between these problems; nor do they show any corresponding technical effect, so that the Special Technical Features of invention 1 (claims 1 and 15), fail to demonstrate a correspondence with the Technical Features of invention 2 (claim 14), thus not satisfying Article 82 and Rule 30(2) EPC.

## INTERNATIONAL SEARCH REPORT

International application No.

PCT/SE 2003/001676

## A. CLASSIFICATION OF SUBJECT MATTER

IPC7: A61B 5/11 // A61N 1/365, C09K 19/02

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC7: A61N, G01C, A61B, G01P, C09K

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

SE,DK,FI,NO classes as above

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

EPO-INTERNAL, WPI DATA, INSPEC

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 5233984 A (THOMPSON, D.L.), 10 August 1993 (10.08.1993), column 2, line 43 - column 3, line 10, figure 2 --	1-14,16
A	US 5755741 A (VOGEL, A.B.), 26 May 1998 (26.05.1998), column 2, line 34 - line 56, figures 1,2 --	1-14,16
A	US 5833713 A (MOBERG, S.B.), 10 November 1998 (10.11.1998), abstract --	1-14,16
A	US 4869251 A (LEKHOLME, A. ET AL), 26 Sept 1989 (26.09.1989), abstract --	1-14,16



Further documents are listed in the continuation of Box C.



See patent family annex.

## \* Special categories of cited documents:

- "A" document defining the general state of the art which is not considered to be of particular relevance
- "E" earlier application or patent but published on or after the international filing date
- "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- "O" document referring to an oral disclosure, use, exhibition or other means
- "P" document published prior to the international filing date but later than the priority date claimed

"T"

later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X"

document of particular relevance: the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y"

document of particular relevance: the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

"&amp;"

document member of the same patent family

Date of the actual completion of the international search

15 January 2004

Date of mailing of the international search report

30 -01- 2004

Name and mailing address of the ISA/  
Swedish Patent Office  
Box 5055, S-102 42 STOCKHOLM  
Facsimile No. +46 8 666 02 86

Authorized officer

Johanna Schyberg /OGU  
Telephone No. +46 8 782 25 00

## INTERNATIONAL SEARCH REPORT

Information on patent family members

01/12/2003

International application No.

PCT/SE 2003/001676

US	5233984	A	10/08/1993	AU	1647892	A	02/11/1992
				WO	9217241	A	15/10/1992

US	5755741	A	26/05/1998	NONE
----	---------	---	------------	------

US	5833713	A	10/11/1998	AT	225201	T	15/10/2002
				AU	7330794	A	13/02/1995
				DE	69431469	D,T	13/02/2003
				EP	0669842	A,B	06/09/1995
				US	5425750	A	20/06/1995
				WO	9502431	A	26/01/1995

US	4869251	A	26/09/1989	DE	3770715	D	00/00/0000
				EP	0254945	A,B	03/02/1988
				JP	2082791	C	23/08/1996
				JP	7112493	B	06/12/1995
				JP	63094165	A	25/04/1988